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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,840	03/03/2004	Sheng-Yuan Lee	3111-422	2511

7590 06/02/2005
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EXAMINER

HO, TU TU V

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

(A)

Office Action Summary	Application No. 10/790,840	Applicant(s) LEE, SHENG-YUAN	
	Examiner Tu-Tu Ho	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-34 is/are allowed.
- 6) ☒ Claim(s) 35-37 is/are rejected.
- 7) ☒ Claim(s) 1 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath/declaration filed on 03/03/2004 is acceptable.

Drawings

2. **Figures 1 and 2** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. **Claim 1** is objected to because of the following informalities: bonding pad, line 11, is mistyped as "bounding pad" and "pads" line 27 should be "pad".

Claim 18 is objected to because of the following informalities: (page 14, lines 21) "high frequency signal bonding loop" should be "high frequency signal bonding **pad**".

Appropriate correction is required.

Claim Rejections § 102 & § 103

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 35-37** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Secker et al. U.S. Patent 6,538,336.

Secker discloses in Figs. 2A-2C and respective portions of the specification a structure of multi-tier wire bonding for high frequency integrated circuit, comprising:

a plurality of bonding pads (235, Fig. 2A), located on a chip, including a high frequency signal bonding pad (corresponding to wire 240 identified by a circled S in Fig. 2C) and a plurality of ground bonding pads (corresponding to wires 240 each identified by a circled G, Fig. 2C);

a plurality of leads (225), located on a package body; and

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at least a ground surface (ground plane 234);

wherein a signal wire (wire 240 identified by a circled S in Fig. 2C) connected to said high frequency signal bonding pad is surrounded by a plurality of ground wires (wires 240 each identified by a circled G, Fig. 2C) connecting said leads and said ground surface (column 4, lines 39-55)

Nevertheless, the reference fails to explicitly teach that the plurality of ground bonding pads surrounds the high frequency signal bonding pad as claimed. However, since, as detailed above, said signal wire connected to said high frequency signal bonding pad is surrounded by a plurality of ground wires, which are respectively connected to the plurality of ground bonding pads, it would appear that the plurality of ground bonding pads would necessarily surrounds the high frequency signal bonding pad so that the corresponding wires 240 do not cross each other to the point where the structure is not operational. In other words, the pattern of the bond pads 235 of Fig. 2A would resemble the pattern of the wire layout of Fig. 2C, where a typical high frequency signal wire S is surrounded by a plurality of ground wires G, as much as possible, hence the plurality of ground bonding pads surrounds the high frequency signal bonding pad, for the device to function.

Referring to claims 36 and 37, the number of ground wires, inherently connecting the corresponding leads 225 to the inherent ground surface of the ground plane 234, comprise of at least four ground wires G.

Allowable Subject Matter

5. Claims 1-34, in so far as in compliance with the claim objections detailed above, are allowable over the prior art of record.

The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or render obvious a structure of multi-tier wire bonding for high frequency integrated circuit with all exclusive limitations as recited in claims 1 and 18, comprising: at least one signal bonding pad located at a border of an active surface of a first electronic device, or at least one high frequency signal bonding pad located at a chip side; at least a coplanar bonding pad surrounding the signal bonding pad, or at least a ground coplanar bonding pad surrounding the high frequency signal bonding pad; a plurality of leads arranged at a border portion – defined by an area of a second carrier surface of a second electronic device not cover by a first carrier surface which is the opposite surface of the active surface - of the second carrier surface of the second electronic device, or at a package size; and a plurality of ground wires electrically connected between the coplanar bonding pad and a linear bonding pad which is the border portion of the second carrier surface surrounding the first carrier surface, or at least a ground surface and a first and second ground loops wherein the first ground loop is closer to the high frequency signal bonding pad than the second ground loop.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu-Tu Ho whose telephone number is (571) 272-1778. The examiner can normally be reached on 6:30 am - 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID NELMS can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TH

Tu-Tu Ho
May 26, 2005